



**TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.**



Joint Center for Robotics (JCR)

Dr. Jim Overholt

15 April 2008

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE <b>APR 2008</b>		2. REPORT TYPE <b>N/A</b>		3. DATES COVERED <b>-</b>	
4. TITLE AND SUBTITLE <b>Joint Center for Robotics (JCR)</b>				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>Tank Automotive Research, Development &amp; Engineering Center</b>				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release, distribution unlimited</b>					
13. SUPPLEMENTARY NOTES <b>Advanced Planning Briefing for Academia (APBA) Presentation, The original document contains color images.</b>					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT <b>UU</b>	18. NUMBER OF PAGES <b>6</b>	19a. NAME OF RESPONSIBLE PERSON
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>			



# TARDEC JCR Robotics



*"White Hat" Organization -  
Understand the needs of the user  
and create partnerships with  
Academia, Industry and OGA*

## JCR



## Intelligent Ground Systems

**Projects & Cells**

CAST



USMC



RVCA



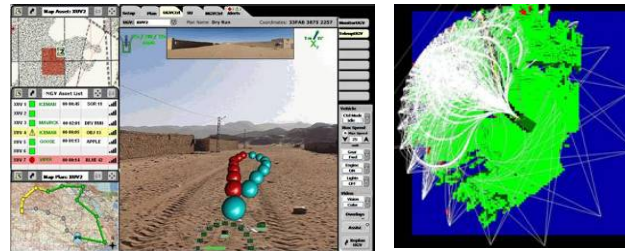
*Future  
Capability  
Cells*

**TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.**

## Safe Operations and 360° SA



## Tactical behaviors



## Platform Mobility

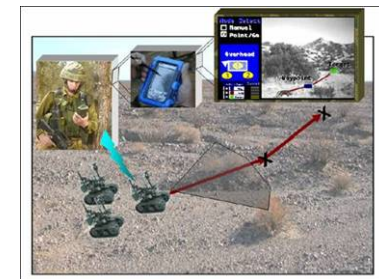


## UGV – Soldier Interfaces

### High-Speed Tele-operation



## Autonomous Control



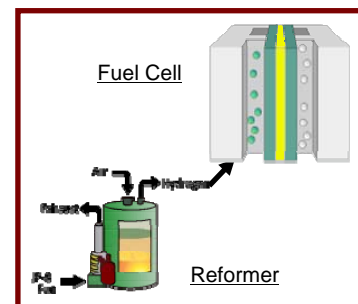
## Arm and Manipulator Articulation



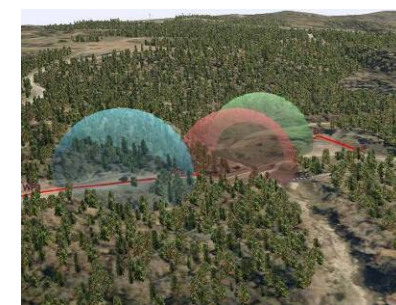
## Communications



## Power Management



## Non-LOS SA



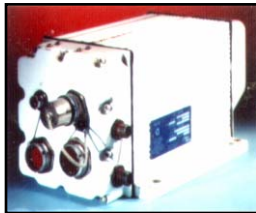




# Manned And Unmanned Vehicle (MAUV) SIL



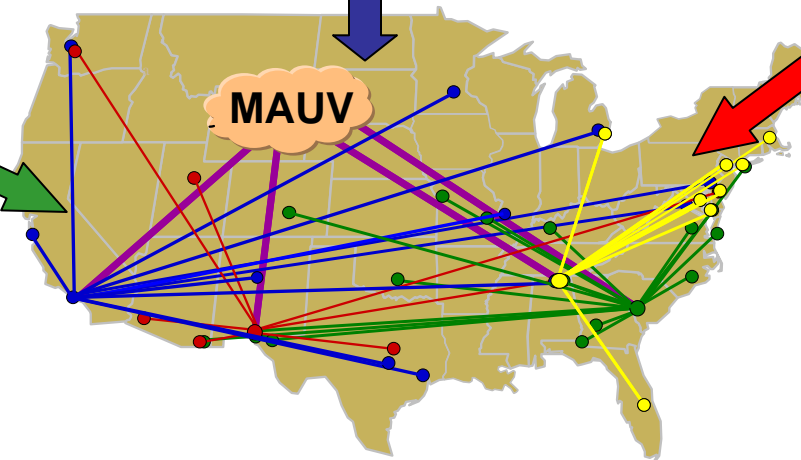
Live



Virtual

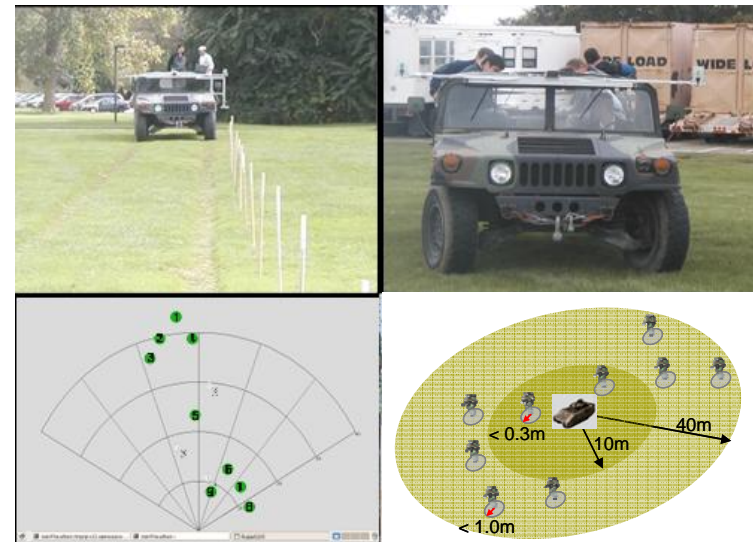


Constructive

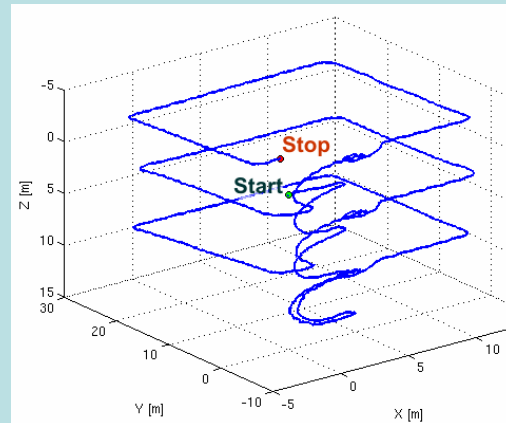


**TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.**

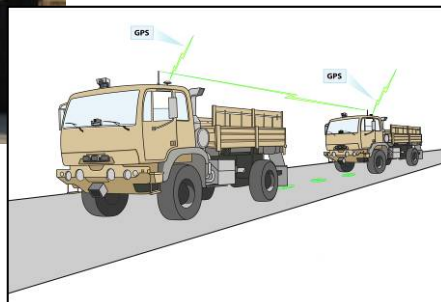
## Oakland University



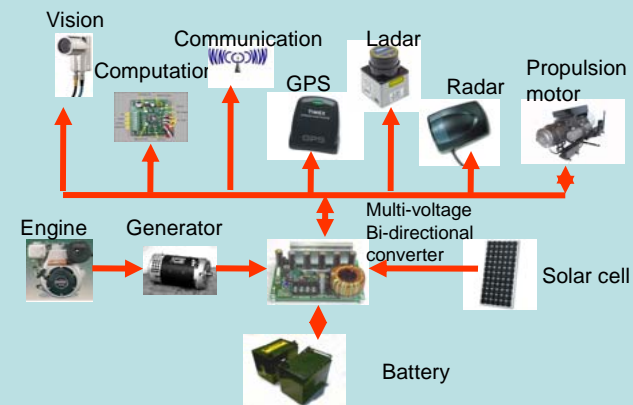
## University of Michigan



## Auburn University



## Lawrence Technological University



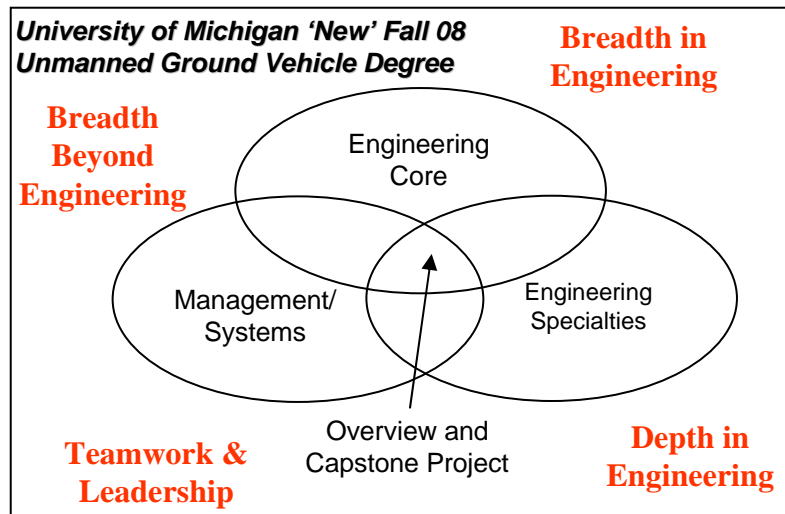
**TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.**

## Relevant academic projects that align university expertise with UGV needs

12-24 month efforts emphasizing immediate needs (**short term**)

2-3 year efforts with specific drop out points of technology (**long term**)

On-site personnel helping in development of “Capability Cells”



## From Research to the Soldier

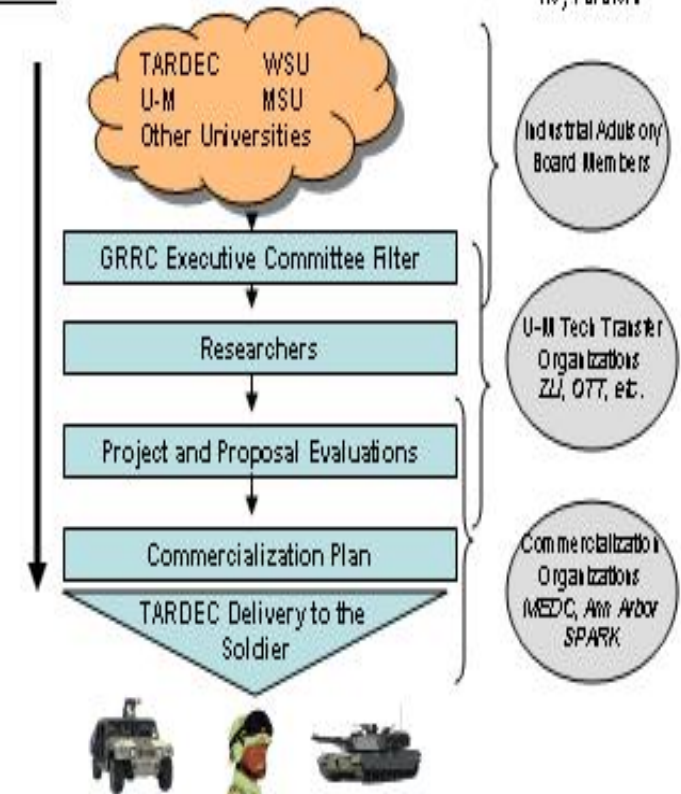
The University of Michigan, other participating universities, companies, and organizations will work within a tech transfer ecosystem to focus research on technologies which demonstrate a clear path to the soldier

### The Research Continuum

Under the TARDEC umbrella, The GRRC will direct research projects and partnerships that:

1. Focus on TARDEC priorities
2. Meet stringent requirements for a focus on the soldier
3. Maintain educational research standards
4. Can deliver tangible results (prototypes, demonstration units, etc)

### Basic Science



**TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.**